

**SUMMARY OF COMMENTS
A NEW VISION FOR CLEAN, SAFE DRINKING WATER
LISTENING SESSION**

**EPA Region 3 and Potomac River Basin Drinking Water Source Protection Partnership
Drinking Water Strategy Listening Session
Metropolitan Washington Council of Governments Building, Washington, DC
August 16, 2010**

WELCOME AND OPENING REMARKS

G. Patrick Bowling, Source Water Protection Coordinator for the Pennsylvania Department of Environmental Protection and Emerging Contaminants Work Group Chair for the Potomac River Basin Drinking Water Source Protection Partnership

- The Potomac River Basin Drinking Water Source Protection Partnership (Potomac Partnership) is working to address emerging contaminants in the Potomac River Basin from a source water protection perspective. The emerging contaminants work group had been considering conducting a workshop on how EPA targets contaminants for drinking water regulations when the EPA announced the new Drinking Water Strategy, so they are pleased to be able to hold this listening session together with EPA to learn more about the EPA approach.

Victoria Binetti, EPA Region 3

- In March 2010, the EPA Administrator announced a new approach for drinking water protection. This new Drinking Water Strategy (the Strategy) will include views and input from different sectors, including water system operators, academia, and the public.
- This is the third of four planned listening sessions to acquire input on the Strategy. EPA expects that hundreds of individuals will have participated in the listening sessions and/or in the Web Dialogue that occurred on July 28-29, 2010. EPA will do some talking today, but they really want to hear from the audience.

George Hallberg, The Cadmus Group, Inc. (Cadmus)—Listening Session Facilitator

- Today's meeting will include presentations by Pam Barr and Audrey Levin from EPA providing an overview of the Strategy. These presentations (also provided as handouts) pose several questions on two of the principles of the Strategy (addressing contaminants as groups and development of new treatment technologies). EPA hopes to have a discussion and receive feedback on these as well as other issues of importance to participants.

OVERVIEW OF THE DRINKING WATER STRATEGY

Pam Barr, EPA Office of Ground Water and Drinking Water (OGWDW)

- Here is a brief history of the new Drinking Water Strategy. In October 2009, EPA published the third Contaminant Candidate List (CCL3), which has 116 contaminants. EPA will use the CCL3 to make regulatory determinations for currently unregulated contaminants. In addition, EPA is carrying out the Six-Year Review of existing federal drinking water standards. When the EPA Administrator was briefed on these activities, she asked that these efforts be set in a larger context – a new Drinking Water Strategy.
- The Strategy has four principles:
 1. *Address contaminants as groups rather than individually.*
 2. *Foster development of new drinking water treatment technologies.* This principle also addresses small systems concerns.
 3. *Use the authority of multiple statutes to help protect drinking water.* This principle primarily focuses on pesticides and toxics, although it also applies to other areas, such as source water protection.
 4. *Partner with states to share more complete data from monitoring at public water systems.* Currently, EPA only receives data on violations. EPA hopes to institute a better, more transparent system for sharing monitoring data.
- By pursuing these actions, EPA will:
 - Provide more robust public health protection in an open and transparent manner.
 - Assist small communities to identify cost and energy efficient treatment technologies.
 - Build consumer confidence by providing more efficient sustainable treatment technologies to deliver safe water at a reasonable cost.
- Additional overview information on principle #1, *Address contaminants as groups rather than individually*, is included in the attached PowerPoint presentation.

Developing New Technologies

Audrey Levine, EPA Office of Research and Development (ORD)

- Development of new technologies (principle #2 of the Strategy) will run parallel to the chemical group principle (principle #1 of the Strategy), but with some different facets.
- We must develop ways to address a broad array of contaminants and remove a broad array of constituents. Technologies are only good if they are affordable and if they are reliable over time and in different conditions. In certain parts of the country, water scarcity and energy cost issues must also be considered. In addition, technologies must be cost effective, suitable for small systems, and not produce residuals.

- EPA is reaching out to outside parties and stakeholders, such as universities. EPA plans to use programs such as the Science to Achieve Results (STAR) grants and the Small Business Innovation Research (SBIR) program to encourage academic work in this area. EPA may also hold competitions for academic groups and/or the private sector.
- Broadly, technologies include: screening and monitoring, treatment, and infrastructure. Treatment is the heart of the issue, but the other categories cannot be ignored.
- The Strategy will consider new technologies as well as existing technologies that could be modified or designed differently.
 - For new technologies, EPA will verify effectiveness as well as evaluate costs, operation issues, and reliability in different scenarios. There can be a significant time lapse between the development and adoption of new technologies.
 - For existing technologies, EPA will demonstrate them under challenging conditions. In particular, EPA plans to build on an existing demonstration program for arsenic treatment.
 - Both of these approaches will include stakeholders, academia, and the community. Indirect effects may include spurring economic growth and training the next generation of water system operators.
- Additional overview information on principle #2, *Foster development of new drinking water treatment technologies*, is included in the attached PowerPoint presentation.

OPEN DISCUSSION SESSION

Facilitator: George Hallberg, Cadmus

Panelists: Audrey Levine, EPA ORD; Wynne Miller, EPA OGWDW; Pam Barr, EPA OGWDW; and Eric Burneson, EPA OGWDW

- Society has limited resources and it is everyone's responsibility to ensure that money is spent properly. Suppose there is a miracle technology that can remove contaminants to below detectable levels. If new methods to detect at lower levels become available, then there may be a push for an even better removal technology as there is a perception that any detectable level of a chemical implies a health risk. We must recognize the costs of new treatment technologies including the energy impact and carbon footprint. Also, even if we do treat drinking water, we must still consider the ecological impact of the chemicals being present in the source water. European governments have placed the responsibility on the chemical manufacturers; they must prove a chemical is safe before it can be used and released.
 - The EPA Administrator is not planning to ask for a revision to any existing laws. The European approach would require a larger change; however, EPA is identifying opportunities within existing laws, such as working with manufacturers to get more information on potential contaminants.

- In addition, EPA may address use restrictions of certain chemicals, such as pesticides, in particular watersheds or nationally.
- In response to a question from a participant related to what would EPA do if the Agency was unable to identify a group, EPA stated that [we] could possibly go back to EPA's Administrator and report that we have tried to identify a viable group but due to technical and economical reasons were unable to do so.
 - The Safe Drinking Water Act (SDWA) requires that EPA follow a clear set of cost and benefit analyses before promulgating a proposed standard.
 - In the grouping process, EPA will identify ways to regulate more effectively within the existing SDWA criteria.
- A participant commented that one way to approach grouping is through surrogates.
- Health risk is the most important aspect. Groups should have the same level of health risk. If not, EPA should target the contaminant in the group with the greatest health risk.
- For emerging contaminants, it is important to address both the parent compounds and the degradates.
- A participant commented that vulnerability assessments may be a good starting point to regulate systems. This could provide better public health protection, but it will pose regulatory and implementation challenges.
- Many states have Source Water Assessment Program (SWAP) data, which could be useful in determining vulnerabilities. However, a participant noted that individual state SWAPs are not rolled up to a national level.
- EPA should address relative source contribution, i.e. risks from drinking water compared to risks from other exposure routes.
 - EPA has long considered other exposure routes and is aware of their effect on health-based standards.
 - There may be no meaningful opportunity to move forward with a regulation if public is getting more contamination from a source other than drinking water.
- Public communication is of utmost importance. Utilities care deeply about what the public thinks and they want the public to trust their product. In a county in northern Virginia, treatment decisions must be justified to the board and to the public. Regulating contaminants at levels not meaningful to public risk confuses the public.
- EPA should consider infrastructure concerns. EPA should consider that large PWSs have issues (e.g. aging infrastructure) and limited resources, in addition to small systems, when evaluating costs.
- With respect to emerging contaminants, the Potomac Partnership is primarily investigating estrogenic compounds, nanoparticles, and pharmaceuticals.
- The Strategy does not seem to address impacts from the distribution system itself (i.e., contaminants from within the distribution system). In addition, most treated water is not

used for potable purposes. Perhaps EPA should investigate point-of-use (POU) filters instead of attempting to remove all contaminants at a central facility.

- The 1996 amendments to SDWA require EPA to consider point-of-use issues. EPA has identified three point-of-use technologies for small system compliance.
 - This is primarily a small systems issue, due to economic factors. SDWA requires that point-of-use systems are owned, installed, and maintained by the water system. This is only cost effective for systems with fewer than approximately 100 customers.
- Point-of-use treatment could also cause public acceptance issues. The public is especially concerned about dermal exposure, which may not be addressed by POU devices.
 - Inhalation and dermal exposure are legitimate concerns. Another option is point-of-entry systems, which treat all water entering the house. However, that still treats almost the full flow.
 - There is also a prohibition on point-of-use treatment for microbial contaminants.
- Perhaps point-of-use treatment could be implemented for subsections of the community (such as pregnant women and individuals with compromised immune systems). This could be a temporary, more cost-effective option for addressing emerging contaminants.
- Residuals management is a key issue.
- When developing new technologies, EPA should consider operator requirements. If a technology is very complicated to implement and operate, small systems with one operator may not be able to use it.
- EPA should use the phrase “new technologies” instead of “advanced technologies.” Small systems may think that “advanced technologies” are beyond their abilities.
- Volatile organic compounds (VOCs) are an example of a contaminant group that can be treated with one technology, activated carbon.
 - Some studies have investigated treatment technologies for groups of pharmaceuticals. However, while they are promising, these have primarily been bench-scale studies, and SDWA requires field-scale studies.
- Private sector involvement in new technology research could be a problem because there is not much market for drinking water technologies.
- EPA could develop case studies on technologies that evolved in the past decade, such as MIOX and ultraviolet (UV) methods. Technologies usually take 5 to 10 years to get acceptance. EPA should gain an understanding of how long development took, what the barriers were, and what the market is, as well as public acceptance issues. A participant asked if there was a role for the government to move such technologies forward.
- EPA should coordinate with wastewater treatment facilities and the producers of pharmaceuticals, where possible. This is similar to the multiple barrier approach, considering sources, wastewater, and drinking water.

- Instead of promulgating new regulations and promoting new technologies, EPA should focus on achieving higher compliance rates for existing regulations. One participant suggested that EPA dismiss the contaminant groups approach and try to get better compliance for existing regulations.
- It will be challenging to develop a maximum contaminant level (MCL) or maximum residual disinfectant level (MRDL) for a group of contaminants, especially when some are more toxic than others.
- Disinfectant by-products (DBPs) have the additional complications of a risk-risk tradeoff because systems also need to maintain microbial protection. This affects the degree to which DBPs can be regulated.
 - Food exposure to pathogens and unknown DBPs also pose challenges.
- One grouping option could be technology-based; for example, a group could include all the contaminants that can be removed with activated carbon. Another option could be to consider the risks of a particular source water supply. Technology could be selected based on source water vulnerability.
- Consistent monitoring (for at least one or two years) will be required to collect the necessary information.
- SWAPs can help to identify the susceptibility and vulnerability of systems. For example, a system with a gas station nearby could be susceptible. If the gas station is new, with little risk of contaminating the surrounding area, the system may not be vulnerable. A system near an old, leaking gas station would be considered vulnerable. This system provides a starting point for monitoring.
- SWAP data could also help prioritize or rank groups.
- The SWAPs have defined parameters and may not be appropriate for new applications. In addition, this may not work in the current funding environment.
 - Perhaps this could be funded by a State Revolving Fund (SRF) set-aside.
- It might be useful to separate data from surface water and ground water systems.
- The Potomac Partnership collected SWAP data from a number of larger utilities, including information on vulnerability and susceptibility. However, this information only applies to conventional contaminants, and it is several years old.
- Pathogens and microbial contaminants are an example of an existing group approach under the Surface Water Treatment Rules and the Ground Water Rule. Remaining groups of microbes could have potential for regulatory action.
 - Regulatory action would depend on whether the pathogen is not addressed by existing treatment technologies (e.g., filtration). A participant commented that not all systems treat their water (e.g., some ground water systems). Regulatory opportunities would be based on the degree of adverse health effect.
- Utilities are absolutely interested in removing unregulated contaminants, to the degree that it is economically feasible.

- It is not hard to gain public acceptance for removing unregulated contaminants that may have health effects.
- Utilities are also concerned about aesthetic issues, such as taste, odor, and appearance.
- EPA should only promulgate regulations that provide significant public health protection.
- Utilities in the planning stages of advanced treatment look to EPA to determine which technologies are best.
- Industrial source water protection is very important; regulations should be tightened so that pollutants are treated at the source.
 - In the Potomac River Basin, 96% of polychlorinated biphenyl (PCB) contamination comes from nonpoint sources.
 - The Philadelphia Water Department also determined that 96% of PCB contamination is from nonpoint sources.
- When evaluating technologies, EPA should evaluate performance.
- One participant commented that current approaches used in this country to address chemical issues in the environment need “surgery.”

FINAL REMARKS

- The EPA’s Drinking Water Strategy web page, <http://water.epa.gov/lawsregs/rulesregs/sdwa/dwstrategy>, has a variety of information and reference materials, as well as a discussion forum. Additional comments can be submitted through the discussion forum webpage.
 - A summary of today’s presentation will be posted on the EPA’s Drinking Water Strategy web page.
- The next listening session will be held on August 19, 2010 at the California/Nevada section of the American Water Works Association (AWWA) offices in Rancho Cucamonga, California.

A New Vision for Clean, Safe Drinking Water

August 16, 2010

Pam Barr

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Drinking Water Strategy

1. Address contaminants as groups rather than one at a time.
2. Foster development of new drinking water treatment technologies.
3. Use the authority of multiple statutes to help protect drinking water.
4. Partner with states to share more complete data from monitoring at public water systems.



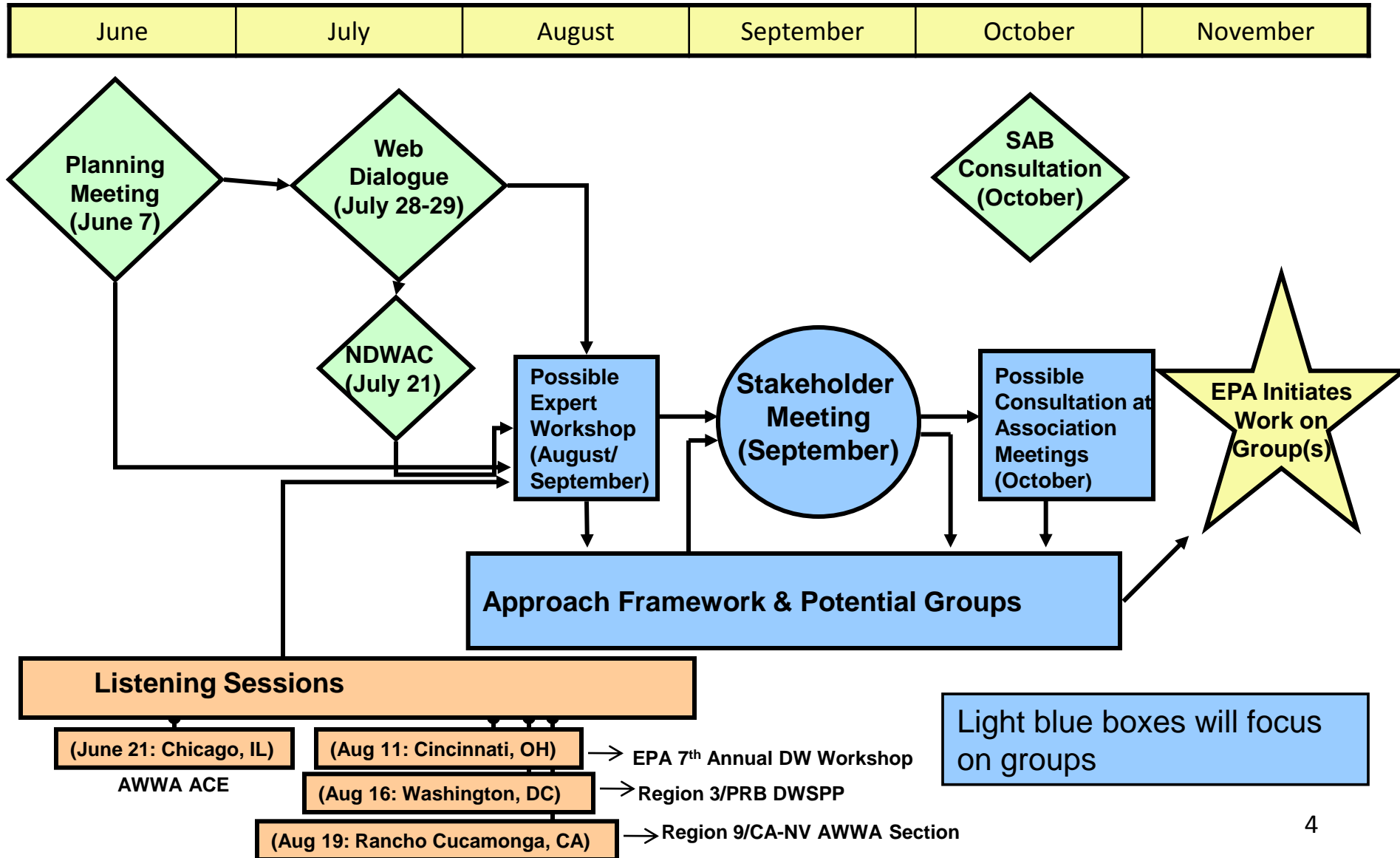
Goals for the New Vision

By pursuing these actions, EPA will:

- Provide more robust public health protection in an open and transparent manner.
- Assist small communities to identify cost and energy efficient treatment technologies.
- Build consumer confidence by providing more efficient sustainable treatment technologies to deliver safe water at a reasonable cost.



Outreach on the Drinking Water Strategy





Why Address Contaminants as Groups for Drinking Water?

- Evaluating and addressing contaminants as groups during the regulatory process may:
 - Be less time consuming and resource intensive
 - Account for risks from multiple contaminants
 - Deal more effectively with an increasing # of emerging contaminants
 - Provide water systems with an opportunity to make best long-term decisions on capital investments



Questions for Listening Session: Address Contaminants as Groups

- What are some potential approaches for addressing contaminants as groups?
- What are some factors that EPA should consider in deciding what makes a good group?
- What are the key (2-3?) technical challenges?
- What are the key (2-3?) implementation challenges?
- Can you provide examples of contaminant groups (2-3?) that may present a meaningful opportunity to protect public health and reduce risk?



Next Steps for the “Groups” Principle

- Obtain feedback from public and stakeholders at August 19th listening session
- Identify “key topic areas” for expert consultations
- Begin planning for the September 2010 stakeholder meeting (likely in DC)
- Develop approach and begin work on potential group by Fall 2010



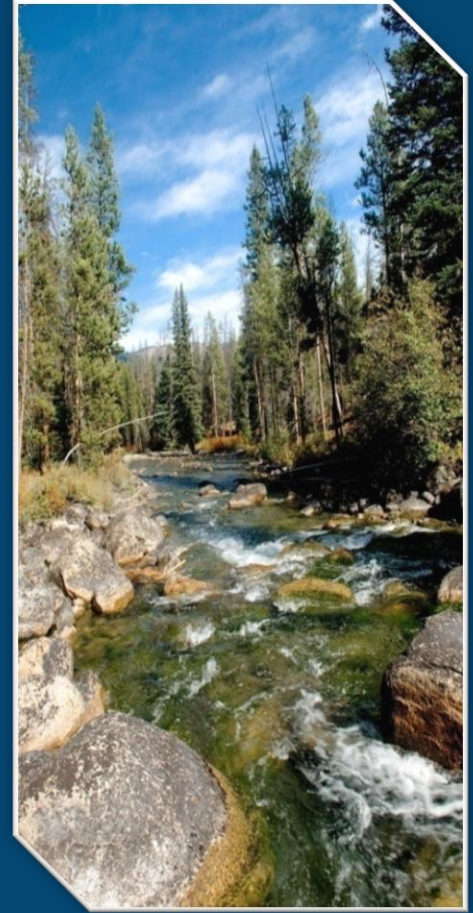
Develop New Technologies

- Foster development of new drinking water technologies to:
 - Address health risks posed by a broad array of contaminants.
 - Control contaminants that confront utilities today and into the future.
 - Provide sustainable safe drinking water at reasonable costs
 - Develop water- and energy-efficient treatment technologies
- Collaborate with universities, technology developers, and the private sector.



Drinking Water Technologies

- Screening and Monitoring
- Treatment
- Infrastructure



Drinking Water Technologies

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graph TD; A[Drinking Water Technologies] --> B[Verification]; A --> C[Demonstration]; B --> D[Develop Protocols<br/>Evaluate & validate drinking water technologies]; C --> E[Develop Demonstrations<br/>Field testing that addresses performance, affordability & sustainability]; D --> F[Engage Stakeholders & Private Industry<br/>Advance development & adoption of sustainable and affordable technologies and approaches]; E --> F;
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The diagram is a flowchart titled 'Drinking Water Technologies'. It starts with a central box at the top, which branches into two boxes: 'Verification' on the left and 'Demonstration' on the right. From 'Verification', a line leads down to a box containing 'Develop Protocols' and 'Evaluate & validate drinking water technologies'. From 'Demonstration', a line leads down to a box containing 'Develop Demonstrations' and 'Field testing that addresses performance, affordability & sustainability'. Both of these boxes then have lines leading to a final box at the bottom, 'Engage Stakeholders & Private Industry', which includes the text 'Advance development & adoption of sustainable and affordable technologies and approaches'. The background of the slide is a photograph of a lake with reeds and mountains in the distance.

Verification

Develop Protocols

Evaluate & validate drinking water technologies

Demonstration

Develop Demonstrations

Field testing that addresses performance, affordability & sustainability

Engage Stakeholders & Private Industry

Advance development & adoption of sustainable and affordable technologies and approaches



Technology Considerations

- Existing technologies
 - What is the current technology landscape?
 - What contaminants can be addressed?
 - What are the best metrics to evaluate performance, reliability, and resiliency?
 - What factors affect affordability, costs, operation and maintenance requirements?
 - What additional research is needed?
 - What types of demonstration projects will be useful?
- New technologies
 - What is the highest priority need for affordable technologies and approaches that eliminate multiple contaminants, particularly for small systems
 - What are potential barriers to success?



Multi-Contaminant Demonstration Program

- Enlist Regions and States to identify appropriate systems for demonstration program
- Criteria for site selection
 - Evidence or suspicion of water quality concerns
 - Need to address multiple contaminants (e.g., CECs, volatiles, pesticides, fluoride, radionuclides, microbes, DBPs, etc.)
 - Partnership on technology selection and operations
- Goals
 - Field test technologies under actual operating conditions at treatment facilities
 - Obtain data on performance, costs, O&M
 - Conduct detailed testing of water quality
 - Evaluate health effects
 - Evaluate residuals, environmental footprint





Engage Private Industry, Stakeholders, and the Academic Community

- Develop, test, verify, and help spur commercialization of innovative solutions and technologies to solve pressing drinking water problems
- Build on EPA's expertise, infrastructure, and strategic partnerships.
- Help spur economic growth through the creation of new businesses and jobs
- Train next generation of water professionals





Questions for Listening Session:

Develop New Technologies and Approaches

- What technological approaches and contaminants will confront utilities in the future? What technologies should we consider for small systems to meet those challenges?
- What do utilities want to see in technologies that could address broad arrays of multiple contaminants in large and small systems?
- What are the drivers utilities consider when evaluating whether or not to install advanced treatment technologies?
- What is needed to convince the public and the private sector to invest in advanced drinking water technologies?
- Are utilities interested in removing unregulated contaminants? What would have to be proven for the individual or mixtures of contaminants?